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ABSTRACT

The acquisition of expressive sign language was studied in four autistic children (ages 10-15 years). Ss were taught expressive sign labels for common objects using a training procedure consisting of prompting, fading, and stimulus totation. The signing of three of the Ss was found to be controlled solely by the visual cues associated with the object and to be independent of the therapist's verbalizing the name of the object. A learning set was observed such that fewer sessions were required to train later signs than earlier ones. (Author/DLS)

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Acquisition of Expressive Sign Language by Autistic Children

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At one time or another, many of us have worked with autistic children who do not learn to speak in spite of our best efforts. The prognosis for such children is particularly unfavorable. Recently, however, educators have begun to utilize the sign language of the deaf as an alternative means of communication for nonverbal children. As yet, however, there have been no controlled studies. Therefore, today, I would like to present the results of a systematic analysis of one very basic aspect of sign language, namely, the acquisition of expressive labels.

We worked with four severely retarded, autistic children, all of whom had failed in previous programs designed to make them speak. Training was conducted 3-4 days per week, 1 hour per day. Our basic goal was to teach each child to make a specific sign when shown a specific object.

Our major training technique consisted of a combination of prompting and fading. For example, in teaching the sign for "apple" (demonstrate sign), the therapist held up an apple while saying the word. If the child failed to make the correct sign, the therapist would employ a prompt; that is, he would lift the child's hand and mold it into the correct sign configuration while saying "apple". The child would then be rewarded with a piece of apple. Next, the therapist would fade the prompt; that is, he would gradually provide less assistance to the child in making the sign until the child was able to make the sign totally unaided. At the end of this training, the therapist would merely hold up the object while saying its name and the child would sign correctly. In the next step, we taught a second sign using the procedures just described. At the same

time, we periodically presented the object which the child had already been trained on, both as a means of rehearsal and as a means of training the child to discriminate among the various objects. We repeated these general procedures until we had trained a number of objects.

The first slide shows the results of this training for the first five signs for Darrick, a representative child. The abscissa denotes sessions on which we tested for mastery of the signs and the ordinate denotes the percent correct on each object. In each frame of the figure, data to the left of the solid vertical line were collected before any training had been undertaken on a given object and data to the right were collected after training had been completed. As can be seen, the child scored zero percent correct on each object until we specifically trained him to label the object at which point his performance became nearly perfect. Further, his near perfect responding carried over from the therapist who originally trained him (shown by the closed circles) to new, generalization therapists (shown by the open circles), demonstrating that the child's correct signing was not unique to a specific therapist. The data for the other three children were very similar to Darrick's, showing that the results were replicable.

In every test session, an independent observer scored each child's responses along with the therapist. The interobserver reliability averaged 99%. In addition, we asked ward attendants to identify photographic slides of the signs. Reliability averaged 86%. The results were clearly reliable.

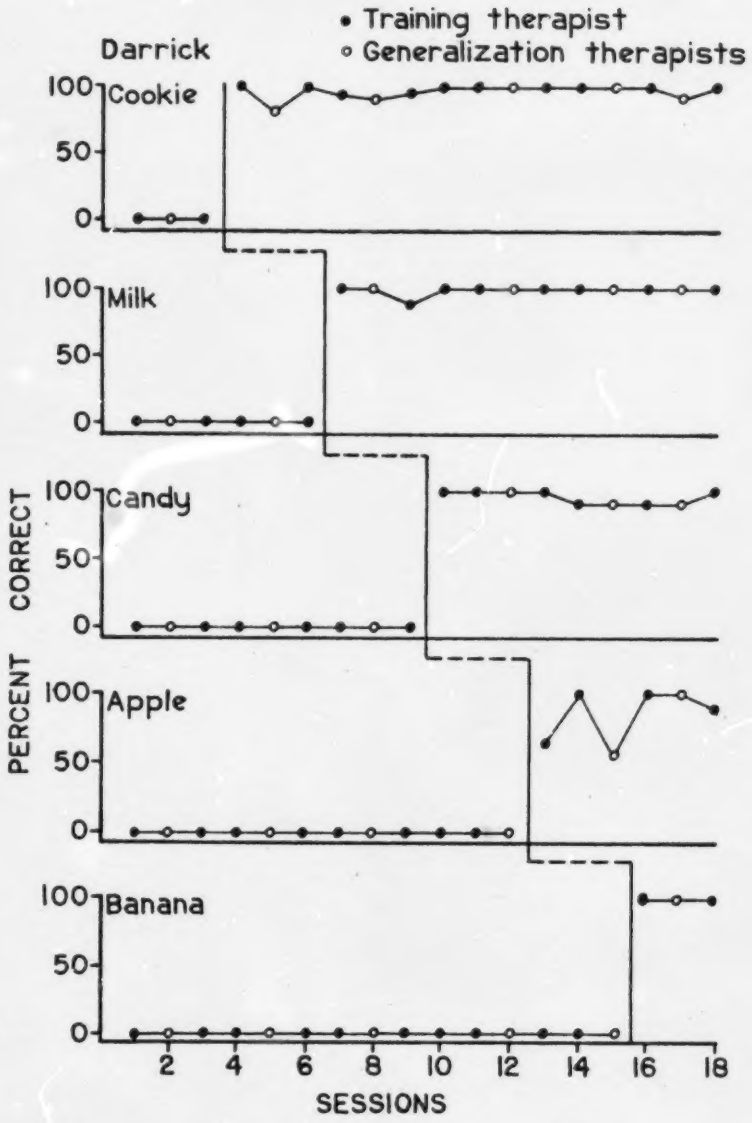
Finally, we were interested in knowing which stimuli controlled each

child's signing. In special test sessions, we presented three different conditions designed to separate out the various stimulus components involved in the training. The second slide presents the results of these tests. The abscissa shows the three test conditions. In the visual (or Vi) condition, the therapist held up the object to be labeled but did not say the name of the object. In the vocal (or Vo) condition, the therapist spoke the name of the object but did not display the object. In the lipreading (or Lip) condition, the therapist silently mouthed the name of the object but did not display the object. The ordinate denotes the percent correct of expressive signs made in each condition. One can see that before any sign training had been undertaken (shown by the open columns labeled "pretest"), the children naturally enough scored zero percent correct in all three condition. However, at the completion of all sign training (shown by the hatched columns labeled "Posttest"), three of the children (Darrick, Dan, and Doug) had learned to attend only to the visual cues associated with the object but apparently had not learned to attend to the vocal cues at all. Bob did learn to attend to both the visual and vocal cues. None of the children had learned to lipread. Overall, these results are consistent with other data which show that autistic children generally display a failure of auditory comprehension. More importantly, these data underline the wisdom of using a purely visual medium, such as sign language, as a means of communication for these children.

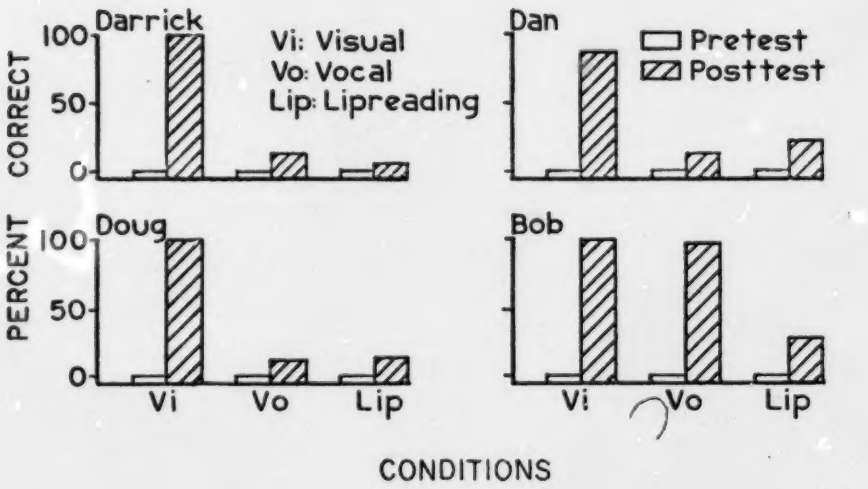
As a concluding note, I should mention that we have extended the sign training for Bob, Dan, and Darrick so that they now have 20 signs. During this additional training, we have observed a 'learning set' phenome-

non. That is, while Darrick, for example, required 50 sessions to learn his first 10 signs, he required only 19 sessions to master his second 10 signs. The learning set data provide grounds for optimism in suggesting that we do not yet know the upper limit of sign language acquisition for the autistic child.

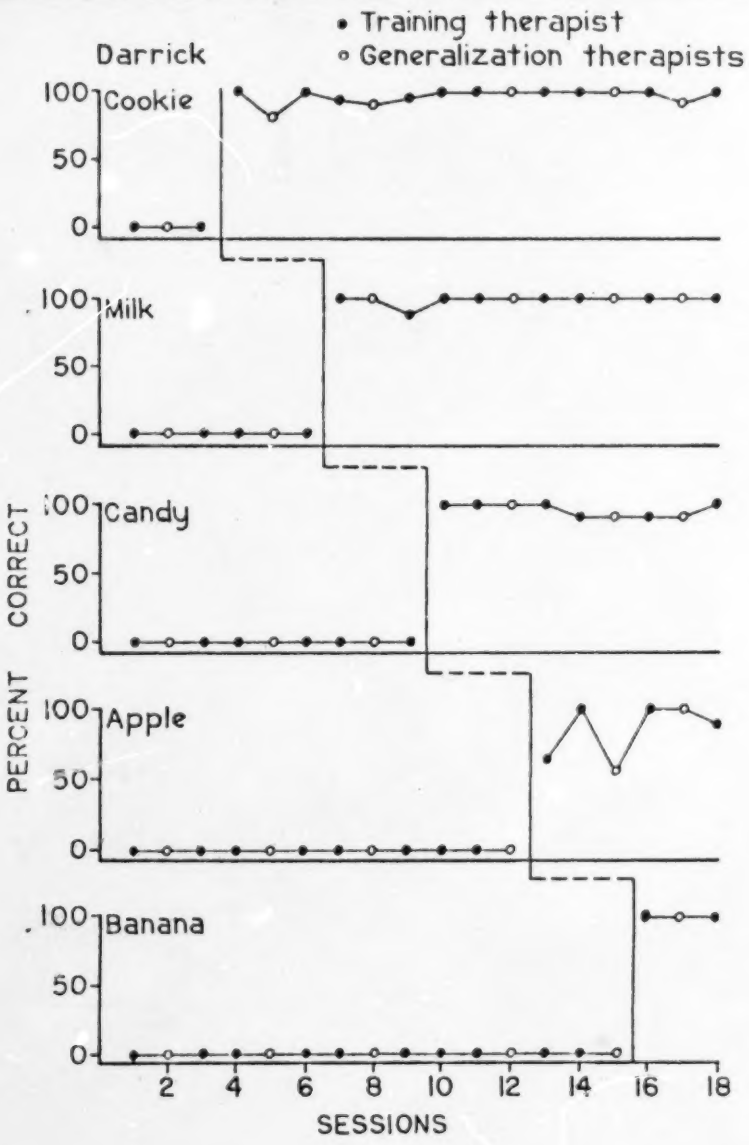
SLIDE #1


• Training therapist
○ Generalization therapists
Darrick
Cookie
Milk
Candy
Apple
Banana
100
50
0
PERCENT CORRECT
2
4
6
8
10
12
14
16
18
SESSIONS

SLIDE #2


Darrick
Dan
Doug
Bob
Vi: Visual
Vo: Vocal
Lip: Lipreading
Pretest
Posttest
PERCENT CORRECT
100
50
0
Vi
Vo
Lip
CONDITIONS

SLIDE #1



SLIDE #2